

REMARKS

The Office Action dated November 25, 2003, has been received and carefully noted. The above amendments and the following remarks are submitted as a full and complete response thereto.

By this Amendment, claims 2-4 have been cancelled and new claim 7 has been added. Claim 1 has been amended. No new matter has been added. Claims 1 and 5-7 are respectfully submitted for consideration.

As a result of the claimed invention, when the motor is in an assembled condition before it is coupled with the nut to complete an electric power steering apparatus, the hollow motor shaft is supported only at its one end portion via the bearing in the same manner as a cantilever. Such cantilevered hollow motor shaft is not stable in position and the opposite end portion of the hollow motor shaft is likely to sag down or offset from a rotational axis of the electric motor. According to the present invention, since the torque limiter is formed by a split ring resiliently deformable in a radial inward direction, a radial offset of the end portion of the hollow motor shaft can be accommodated by resilient deformation of the split ring when the end portion, the hollow motor shaft, and the nut are fitted together to form an electric power steering apparatus with the torque limiter disposed therebetween.

Claims 1, 2 and 5 were rejected under 35 U.S.C. § 102(b) as being anticipated by Hovanchak (EPO 0279034 A1). Claim 2 has been cancelled. The Applicants respectfully submit that claims 1 and 5 recite subject matter that is neither disclosed nor suggested by Hovanchak.

Hovanchak discloses, in Fig. 5, a tubular connector or drive shaft 172 supported at one end thereof by a ball bearing 176. An opposite end of the tubular connector 172 and the ball nut member 184 are directly coupled together via a spline connection 188, 186. The spline connection requires a correct axial alignment of the tubular connector 172 with the ball nut member 184 and cannot be formed or completed when the splined opposite end of the tubular connector 172 is offset from a rotational axis of the electric motor 22.

As such, Hovanchak fails to disclose or suggest each and every feature of the invention as recited in claim 1. Claim 1 recites that the hollow motor shaft has one end portion rotatably supported by a bearing and an opposite end portion supported within a connection hole of a nut via the resilient split ring of the torque limiter. Hovanchak fails to disclose one end portion of the motor shaft supported by a bearing and the other end supported within a connection hole of the nut via a resilient split ring of the torque limiter. Accordingly, Hovanchak fails to disclose each and every feature of the invention as recited in claim 1.

According to U.S. patent practice, a reference must teach every element of a claim in order to properly anticipate the claim under 35 U.S.C. §102. In addition, “[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628,631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). “Every element of the claimed invention must be arranged as in the claim . . . the identical invention, specifically, [t]he identical invention must be shown in as complete detail as contained in the claim.” Richardson v. Suzuki Motor Co., 868 F.2d

1226, 1236 (Fed. Cir. 1989) (emphasis added). As such, the Applicant respectfully submits that Hovanchak fails to disclose one end portion of the motor shaft supported by a bearing and the other end supported within a connection hole of the nut via a resilient split ring of the torque limiter as recited in amended claim 1. Therefore, Hovanchak does not disclose every element of claim 1 as arranged in the claim. Accordingly, Hovanchak does not anticipate claim 1, nor is claim 1, obvious in view of Hovanchak.

Claims 3 and 4 were separately rejected under 35 U.S.C. § 103(a) as being unpatentable over Hovanchak in view of Joshi (U.S. Patent No. 5,971,094). As claims 3 and 4 have been cancelled, the rejections are now rendered moot.

Claim 6 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Hovanchak in view of Sugino et al. (U.S. Patent No. 5,927,429, "Sugino"). Hovanchak was cited for disclosing many of the claimed elements of the invention with the exception of a rack guide and a bush disposed around the rack shaft. Sugino was cited for curing these deficiencies. The Applicants respectfully submit that claim 6 recites subject matter that is neither disclosed nor suggested by the cited prior art.

With respect to claim 6, the Applicants submit that the combination of Hovanchak and Sugino fails to disclose or suggest the claimed features of the invention. Claim 6 recites a bush disposed around the rack shaft at a position offset from the screw toward the other end portion of the rack shaft, wherein the bush is normally spaced a predetermined distance from the rack shaft in a radial direction such that the bush supports the rack shaft when the rack shaft bends at an axial center of the bush by a predetermined value. In contrast, Hovanchak is generally called as "center take-off

type" power steering apparatus in which a linkage assembly 24 extends from a central portion of the steering gear 20 and is connected with the steerable wheels of the vehicle to apply a steering force to the wheels when the linkage assembly is moved. See column 3, lines 24-30 of Hovanchak. The center take-off type power steering apparatus is different from that disclosed in Sugino and from the present invention in which opposite ends of a rack shaft are connected via tie rods and knuckle arms to steerable road wheels. Due to the structural and functional differences in operation, Hovanchak does not encounter the same problem as Sugino. As such, Hovanchak teaches away from Sugino, and also the present invention. Therefore Hovanchak and Sugino cannot be properly combined to disclose or suggest the claimed features of the invention.

With respect to claim 6, the Applicants also submit that there is no motivation in the prior art for the modification of Hovanchak by Sugino as suggested in the Office Action. The Office Action, paragraph 3B, states that it would have been obvious to one of ordinary skill in the art to include a rack guide of Sugino so that the rack shaft of Hovanchak may be properly supported during movement, and to properly engage the pinion with the rack. However, it should be noted that Hovanchak already discloses a yoke 72 which engages the elongate member 26 diametrically opposed to the pinion gear 46. The yoke 72 of Hovanchak is biased by a spring 74 to the right, as viewed in Fig. 2, to maintain the rack portion 34 of the elongate member 26 in meshing engagement with the pinion gear 46. Accordingly, there is no need to add a rack guide to Hovanchak because the problem alleged in the Office Action, specifically, support of the rack shaft during movement and engaging the pinion with the rack, is already solved by the yoke 72 and spring 74 in Hovanchak. See column 4, lines 20-26 of Hovanchak.

Specifically, Hovanchak solves the problem alleged in the Office Action, without a rack guide.

With regard to each of the rejections under §103 in the Office Action, it is respectfully submitted that the Office Action has not set forth a *prima facie* case of obviousness. The PTO has the burden under §103 to establish a *prima facie* case of obviousness. In re Fine, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Third, the prior art references when combined must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

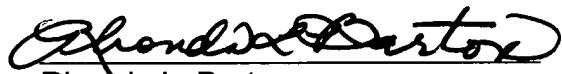
In view of the above, the Applicants respectfully submit that Hovanchak, Joshita and Sugino, either singly or in combination fail to disclose or suggest the claimed features of the invention. Further, the Applicants submit that the Office Action has failed to establish a *prima facie* case of obviousness for purposes of a rejection of claim 6 under 35 U.S.C. § 103.

Claims 5, 6 and new claim 7 depend from claim 1. The Applicants respectfully submit that these dependent claims are allowable at least because of their dependency from allowable base claim 1. Accordingly, the Applicants respectfully request allowance of claims 1 and 5-7 and the prompt issuance of a Notice of Allowability.

Should the Examiner believe anything further is desirable in order to place this application in better condition for allowance, the Examiner is requested to contact the undersigned at the telephone number listed below.

In the event this paper is not considered to be timely filed, the Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension, together with any additional fees that may be due with respect to this paper, may be charged to counsel's Deposit Account No. 01-2300, **referencing attorney docket number 101154-00009**.

Respectfully submitted,



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